

Trauma Performance Improvement

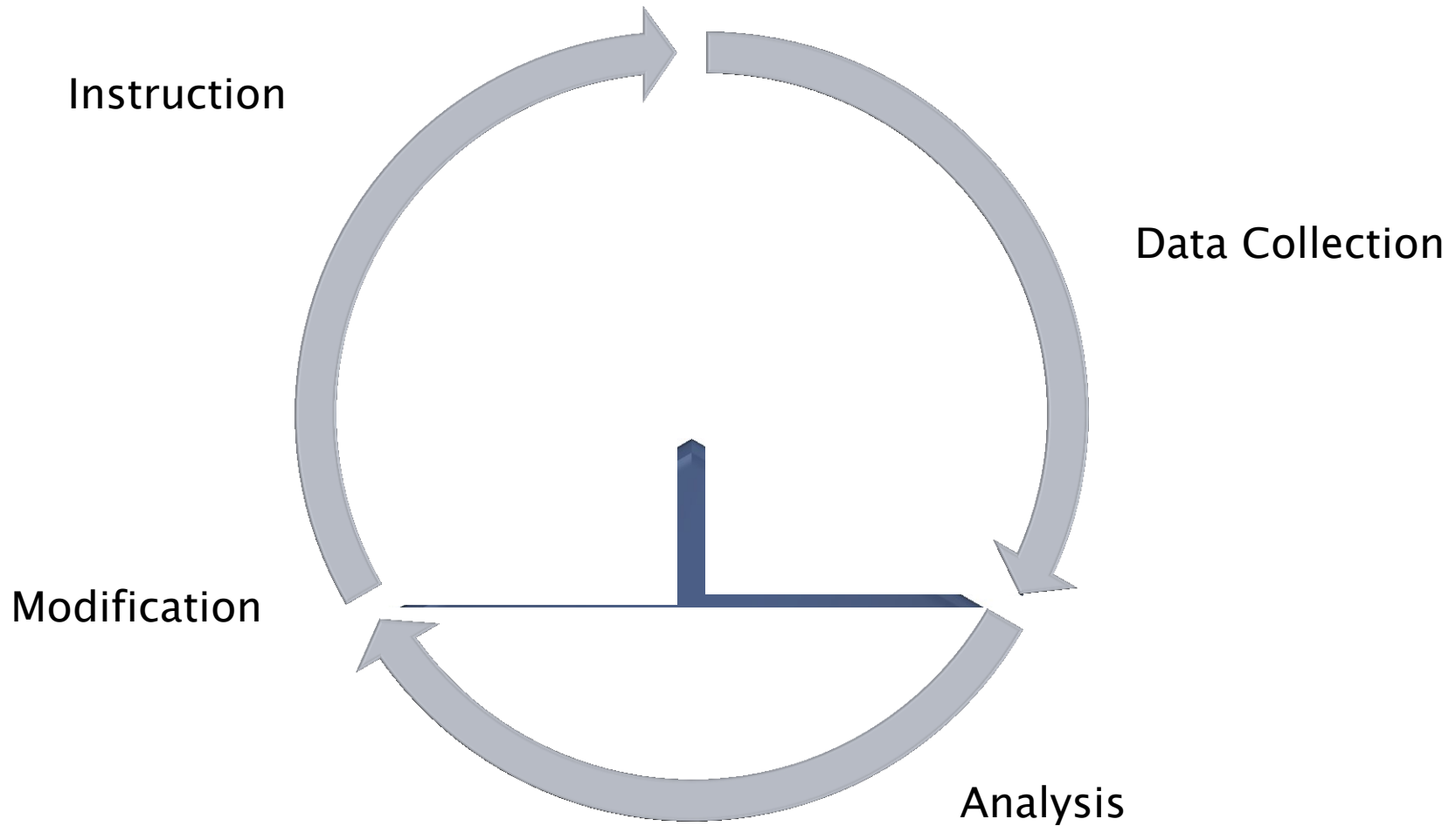
“Meat and Potatoes” of the Trauma Program

Trauma Performance Improvement



- ▶ Systematic evaluation of care for each trauma patient
- ▶ Performance improvement (PI) for care of the injured patient is a central element of the Montana Trauma System
- ▶ Developing a trauma performance improvement program should:
 - Contribute to patient care
 - Be sustainable
 - Not overwhelm staff who have many other demands on their time
 - Be integrated into the hospital PI program

Continuous Performance Improvement Process



A Few Tips

The sooner the review, the better

Be thorough and systematic

Figure out a system that works for you

It's easy to get caught up in auditing data points; don't forget the big picture

Keep an open mind, don't pre-judge a case

Start by presuming the system failed, not a person

Should rarely be a punitive process

It's all about the next one...how can we apply what we learned from this patient's care to the care we'll provide for future patients?

Trauma Performance Improvement

- ▶ Monitoring the performance of trauma care can identify areas for:
 - Improvement in patient outcomes
 - More effective use of resources
 - Methods to expedite appropriate care
 - Education/outreach/injury prevention to focus on
 - Protocol/guideline development

PI Focus Areas

- ▶ The majority of our Trauma Centers are Trauma Receiving Facilities where the primary focus of the Trauma Program is:
 - Stabilization of seriously injured patients
 - Movement of these patients through the system to definitive care
- ▶ Those facilities that provide surgical intervention need to add evaluation of that aspect of care
- ▶ If the facility admits trauma patients to the ICU and acute care ward, evaluation of care in these areas is included

A Few Tips

No precise prescription for PI exists

Trauma Director must lead

Must be multidisciplinary effort

Adverse outcome does not always indicate poor care & visa versa

Focus on opportunities for improvement rather than on problems

Most errors are related to system or process issues

Timely, accurate collection & analysis of meaningful data is a challenge

How Do I Identify Issues?

Trauma "Concern" forms

Phone calls (dedicated private line)

"Hallway consults"

As you care for the patient

Retrospective chart review

Be a cheerleader, not a nagger

Chart Review Tips

- ▶ This is not just about extracting data for the Registry...it's about evaluating the care delivered to the patient
- ▶ Don't miss the forest for the trees...you must consider the big picture:
 - How did this flow & were ATLS guidelines followed?
- ▶ Start from the start, not with the Discharge Summary
- ▶ Start with an open mind
- ▶ Take notes as you go
- ▶ Understand your role
- ▶ Know what you're looking for

A Few Tips

Develop mechanisms for identifying (and prioritizing) problems

Take the time to involve lots of people as you create solutions

Involve all those same people when you reassess

Be flexible and open-minded

Be sure that the Administration is aware of the Trauma Program's accomplishments

"It's amazing how much can be accomplished when nobody cares who gets the credit"

Components of Trauma PI

Identify trauma patient

Data – Quality Indicators/Patient Care Review

Issue Identification

Levels of Review

Conclusions/Evaluation

Action Plan

Implementation

Evaluation/“Loop Closure”



Trauma PI can set the tone for PI in the health care facility

Methods of Identifying PI Issues

- ▶ Staff reporting of quality issues
- ▶ Active rounding on admitted patients
- ▶ Trauma deaths are automatic reviews and most facilities review all transfers out
- ▶ Activations should be reviewed
- ▶ Establish & monitor quality indicators to review on all trauma patient medical records
 - Appropriateness & timeliness of care
 - Documentation
 - Adherence to care guidelines/protocols
 - Specific complications
- ▶ Committee meeting discussions
- ▶ Outside agency PI process review

► Issue identification can be concurrent or retrospective

- Concurrent review occurs in real time
- Retrospective review relies on chart review

► It is ideal if patient rounding done on admitted patients

- Conducted by TNC in smaller facilities and by the TNC and TMD in larger facilities

► Advantages of concurrent issue identification

- Ability to impact patient care at the point of service
- Increase in staff satisfaction
- Improved accuracy

"Celebrate what you've accomplished, but raise the bar a little higher each time you succeed"

Mia Hamm

Types of PI Quality Indicators

Process Measures

- Operational issues relating to the system or structure in which care is delivered
- Clinical care issues

Outcome Measures

- Results of the care given
- Monitoring to establish if the process of care achieved the desired outcome

Quality Indicator Examples

- ▶ EMS scene time longer than 20 minutes without extrication
- ▶ Over or under triage for trauma team activation
- ▶ Medical provider response >30 minutes
- ▶ Patient with GCS <8 leaving ED without intubation
- ▶ Hypoxia ($PO_2 < 90\%$) or hypotension (adult SBP < 90) for patients with TBI
- ▶ Warming measures not initiated for hypothermia ($T < 96$)
- ▶ ED time >6 hours prior to interfacility transfer
- ▶ Patient requiring re-intubation within 48 hours of extubation
- ▶ Trauma patients developing DVT, PE, or decubitus ulcer
- ▶ Patients discharged home but returned to the hospital for same injury

Regional Trauma Center Feedback

- ▶ Summary of injuries and care
- ▶ Performance issues might include:
 - Time at facility prior to transfer and any avoidable delays
 - Need for chest tube at initial facility
 - Need for intubation
 - Inappropriate splinting or cervical spine stabilization
- ▶ Identify cases for closer review only
- ▶ Meant to be helpful
- ▶ Not a judgment of care



EMS & Trauma Feedback

Web-based trauma registry

Letter returned with each batch of records includes possible PI issues to consider

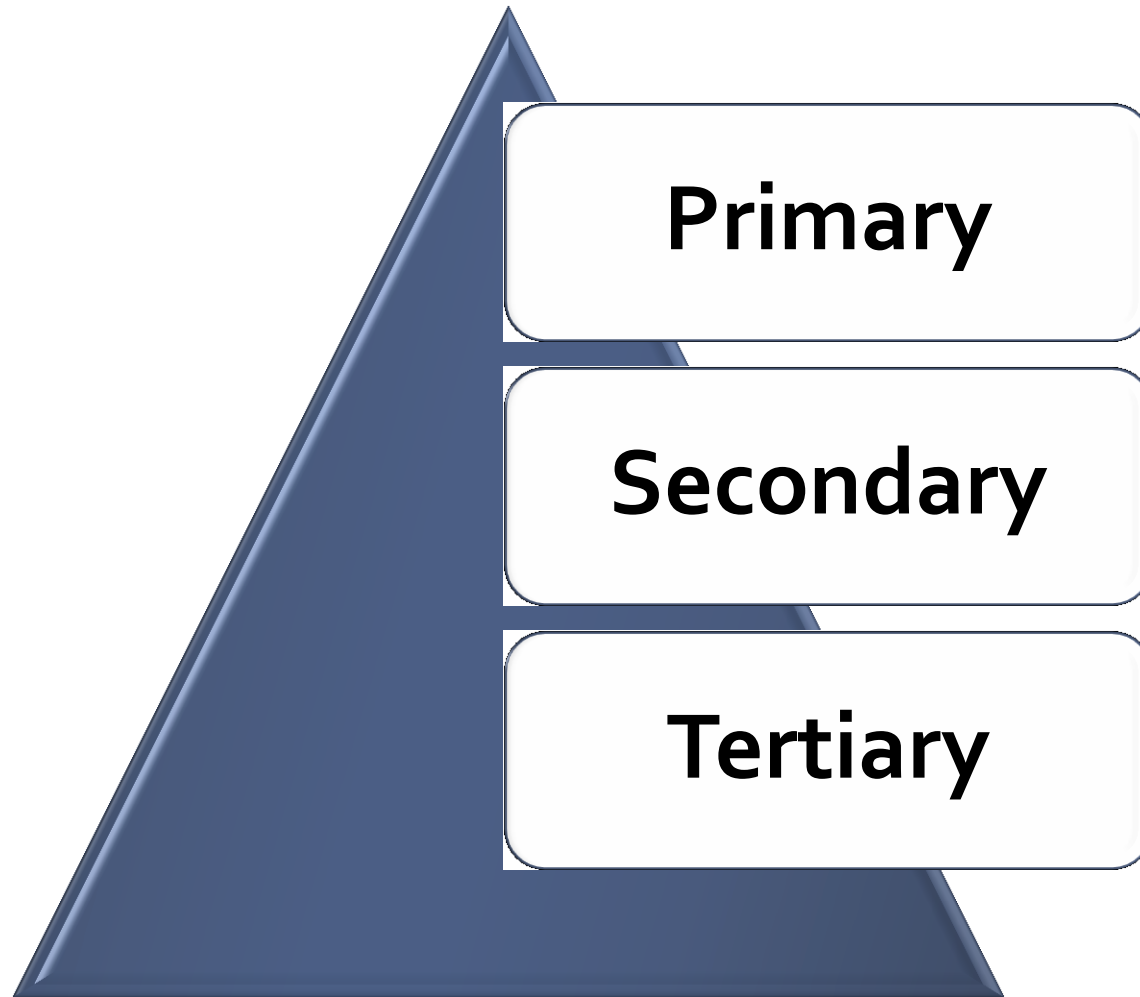
- Each facility must also internally monitor for PI issues

Bi-annual RTAC summary reports

Annual facility specific summary reports



Levels of PI Review



Primary Review

- Concurrent/retrospective issue identification
- TNC may decide there is no issue to pursue or may choose to track the issue and evaluate its rate of occurrence over time
- Documented in PI process
- May be closed at this level without TMD involvement

Secondary Review

- TMD and TNC work together to investigate the issue
- Issue may be closed at this level or it may be decided that further intervention is needed
- This could entail a conversation between the TMD and other provider(s), sending a written letter or deciding to review the case at Multidisciplinary Trauma Committee or with some other group
- May refer to Peer Review
- All actions and the reasons for them must be documented in the PI process

Tertiary Review

► Committee Review

- A case may be reviewed at many meetings with the discussion focused on the care delivered by that group (mainly review ED care with ED physicians)
- Multidisciplinary Trauma Committee
- Emergency Department Committee
- Medical Peer Review
- PI Subcommittee
 - Regional Trauma Advisory Committee (RTAC)
 - State Trauma Care Committee (STCC)

Multidisciplinary Trauma Committee

Process focused

Works on global system & operational issues

Representatives from all phases of care with attendance recorded

- Medical providers, EMS, nurses, ancillary staff & administration
- Must generate written, protected minutes that not only describe the case but also provide detail on the discussion and conclusions reached
- Linked with hospital PI process

Multidisciplinary Trauma Committee

Meet monthly/quarterly to review system & process PI

Try to keep the meetings on the same day of the week and week of the month to increase attendance

Set expectations for attendance and do not routinely cancel meetings

Review minutes from previous meeting

Try to distribute agenda prior to the meeting and be sure to let providers know if a case they were involved in is going to be reviewed

TMD must manage this meeting so open discussions are encouraged in a professional environment

Medical Peer Review

- ▶ Review of deaths, complications and clinical care issues of seriously injured patients either admitted to the facility or transferred to a higher level of care
- ▶ Provider-focused with participation of medical providers involved in trauma care
- ▶ Limited access forum but Trauma Coordinator must attend when trauma cases reviewed
- ▶ Documentation to be written carefully but include candid discussion and should be clearly labeled “Confidential Performance Improvement/Peer Review”

Review ALL Trauma Deaths

- ▶ Trauma deaths automatically included in PI review
- ▶ Identify injuries
 - Autopsy report/feedback from RTC
- ▶ Identify co-morbid conditions
- ▶ Identify all opportunities for improvement
- ▶ Determine preventability of the death
 - Mortality without opportunity for improvement (was Non-Preventable)
 - Anticipated mortality with opportunity for improvement (was Potentially Preventable)
 - Unanticipated mortality with opportunity for improvement (was Preventable)

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Confidentiality Protection

- ▶ Confidentiality protection is important to allow for frank discussion of issues with accurate documentation
- ▶ Include statement of confidentiality on PI documentation
- ▶ Use generic identifiers for the patient, providers, EMS agency, flight teams, & other facilities
- ▶ If PI handouts used at meetings, collect and destroy after the meeting has concluded
- ▶ Keep PI documents locked in a secure area with limited access

Regional or State Review

May request case review at either a regional or statewide level

Quarterly Performance Improvement meetings

- Regional Trauma Advisory Committee (RTAC)
 - Contact RTAC Secretary
- State Trauma Advisory Committee (STCC)
 - Contact Trauma System Manager



Conclusions

Evaluation of the issue may include:

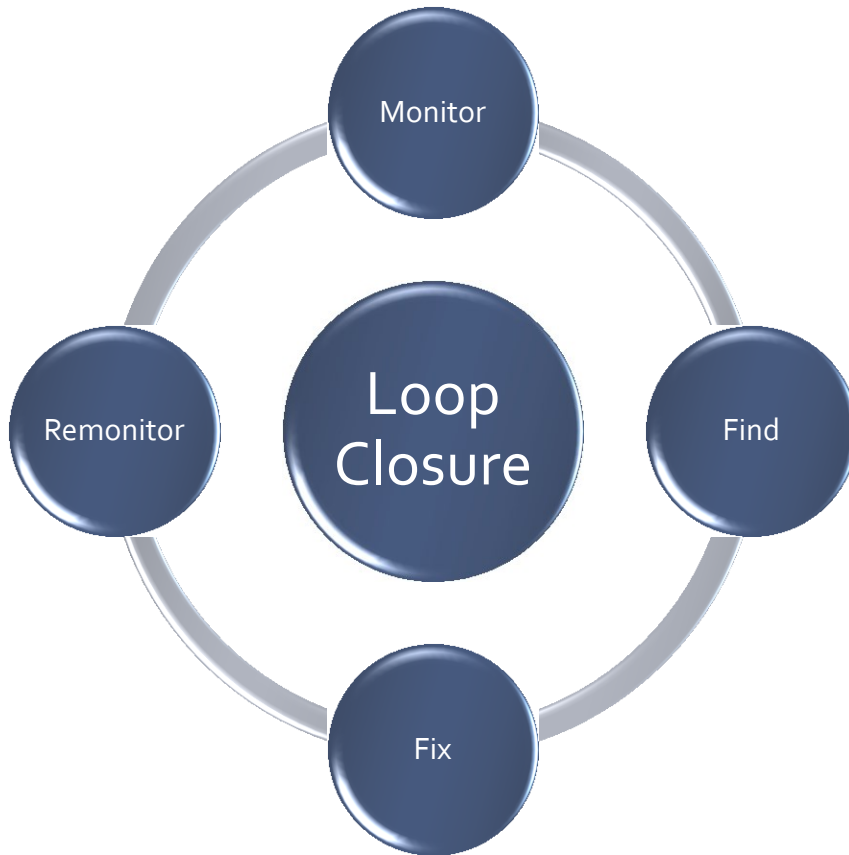
- Contributory factors
- Special circumstances
- Lack of equipment
- Limited experience
- Inadequate education
- No policy or guideline covering this situation

Action Plan

Examples

- Guideline, protocol, or pathway development &/or revision
- Targeted education (rounds, conferences, journal clubs, lunch & learn sessions with staff)
- Enhanced resources, facilities, or communication
- Counseling
- Peer review presentations
- Change in provider privileges or credentials
- External review at RTAC, STCC or by a Level I Center in another state

Problem Solved: “Loop Closure”



The word “loop” refers to a cycle of monitoring, finding, fixing, and monitoring again

- Has corrective action made a difference?
- Is follow up or continued monitoring needed?
- Can the loop be closed permanently or are further interventions required?

PI Documentation



- Case Summary



- Issue Identification



- Level of Review



- Conclusions



- Corrective Action Plan



- Implementation



- Evaluation method for “Loop Closure”

Trauma Indicators	YES	NO	NA	Comments	
EMS Scene Time				Arrival:	Departure:
EMS Trip Sheet on Chart					
Trauma Team Activation:				Time:	
Initiated by EMS					
*Overtriage OR Undertriage				Describe:	
Patient Arrival to ED				Time:	
Timely Notification of Physician / Surgeon				Time:	
Timely Arrival of Physician / Surgeon				Time:	
Timely Airway Management / Endotracheal Intubation for:				Time:	
Respiratory Insufficiency (Respiratory Rate <10 or >29)				Describe:	
Decreased LOC (GCS ≤ 8)				GCS Total: Eye:	Verbal: Motor:

*Overtriage – Activation with discharge home from ED
Undertriage – No activation for patient transferred to higher level of care, ICU/OR, or died **OR** no activation when patient met criteria

Trauma Indicators	YES	NO	NA	Comments
Timely Chest Tube Placement for Hemothorax / Pneumothorax				Time: Tube Size / Location:
Patient with Hypotension (adult BP < 90) given Fluid Resuscitation				IV Number / Size: List Fluids / Blood Totals:
Temperature Documented				Temperature: Route:
*Hypothermia Identified:				Time:
Warming Measures				List:
Patient Discharge from ED:				Time:
Transfer > 2 hours				Method: Destination:
Surgery/ICU Admit/Acute Care Admit/Home/Death				
Complete ED Nursing Documentation				
Trauma Flowsheet Utilized				

*Hypothermia – Core body temperature below 96 degrees F (35 degrees C)

Trauma PI Documentation

PI Issue	Level of Review Date	Conclusion	Action Plan	Implementation	Evaluation

PRACTICE SESSION

*Trauma Case Review for
Performance Improvement*

EMS Documentation

Paged out for MVC at approximately 1050

Dispatched 1100, responded 1115, on scene 1130, left scene 1145, arrived at facility 1200

MIVT radio report to hospital at 1155

- **M**- 65 year old unrestrained male driver in single vehicle rollover with ejection, found 30 feet from vehicle. Patient on Coumadin.
- **I**- Suspected injuries include TBI & chest injuries
- **V**- 120-32-120/80, O2 sat 90%, GCS 10
- **T**- Oxygen via NRB at 15L/min with spinal stabilization

Emergency Department Documentation

- ▶ 1157: Provider notified, 1200: patient arrives, 1205: provider arrives
- ▶ 1203: Initial vital signs 120-32-118/82, O₂ sat 88% on NRB 15 L/min, temp 98.9 R, GCS 10 (2-4-4), pupils equal & reactive, VS & NS repeated q 15 min on trauma flowsheet
- ▶ 1215: Endotracheal intubation with RSI
- ▶ 1225: Verified tube placement by portable CXR which also revealed multiple right rib fractures with moderate sized pneumothorax, portable pelvis and lateral c-spine films obtained later showed no injuries, vital signs 130-30-104/84, GCS 10
- ▶ 1210/1227: Two 18 gauge IVs placed with LR hung
- ▶ 1325: 28F chest tube placed on right side
- ▶ 1400: Vital signs 88-24-128/82, 2 liters LR infused
- ▶ 1405: Flight team leaves with the patient, notification time 1220

Brief Patient Summary

This is the case of a 65 year old male who was the unrestrained driver in a rollover with ejection 30 feet from vehicle at 1050.

Current meds include Coumadin.

Injuries include a TBI with GCS of 10 and multiple right rib fractures with pneumothorax.

The patient remained in spinal stabilization with back raft, was intubated and right chest tube placed. He was transferred by flight to RTC two hours after arrival.



Trauma Indicators	YES	NO	NA	Comments
EMS Scene Time	X			Arrival: 1130 Departure: 1145 Total: 15 min
EMS Trip Sheet on Chart	X			
Trauma Team Activation:		X		Time: Hospital called at 1155, 5 min PTA
Initiated by EMS		X		
*Overtriage OR Undertriage	X			Describe: TBI with GCS of 10, chest injuries, RR 32 with sat 90% on NRB 15 L/min and no trauma team activated
Patient Arrival to ED				Time: 1200
Timely Notification of Physician / Surgeon		X		Time: 1157
Timely Arrival of Physician / Surgeon	X			Time: 1205
Timely Airway Management / Endotracheal Intubation for:	X			Time: Intubated at 1210, 10 min after pt arrival & 5 min after provider arrival
Respiratory Insufficiency (Respiratory Rate <10 or >29)	X			Describe: RR 32 with O2 sat of 86% on NRB
Decreased LOC (GCS \leq 8)			X	GCS Total: 10 Eye: 2 Verbal: 4 Motor: 4

*Overtriage – Activation with discharge home from ED

Undertriage – No activation for patient transferred to higher level of care, ICU/OR, or died OR no activation when patient met criteria

Trauma Indicators	YES	NO	NA	Comments
Timely Chest Tube Placement for Hemothorax / Pneumothorax		X		Time: 1325 after identified at 1225 Tube Size / Location: Small 28F on right
Patient with Hypotension (adult BP < 90) given Fluid Resuscitation			X	IV Number / Size: Two 18g at 1210 & 1227 List Fluids / Blood Totals: 2 liters of LR, BP OK
Temperature Documented	X			Temperature: 98.9 Route: R
*Hypothermia Identified:			X	Time:
Warming Measures			X	List:
Patient Discharge from ED:	X			Time: 1405 (just over 2 hours after admission)
Transfer > 2 hours	X			Method: Emergency flight team Destination: Regional Trauma Center
Surgery/ICU Admit/Acute Care Admit/Home/Death			X	
Complete ED Nursing Documentation	X			Good nursing documentation
Trauma Flowsheet Utilized	X			

*Hypothermia – Core body temperature below 96 degrees F (35 degrees C)

Trauma PI Documentation

PI Issue	Level of Review Date	Conclusion	Action Plan	Implementation	Evaluation
Trauma team not activated Undertriage					
Provider notified late					
Chest tube placed 1 hr after pneumothorax identified					

Performance Improvement

Improving patient care through:

- Development of a strategic plan for trauma care
- Obtaining resources for the facility
- Guiding education & outreach efforts
- Guiding injury prevention efforts
- Assessment of provider/nurse/EMT competency
- Shows the effectiveness of clinical protocols/guidelines

Strategic Trauma Plan

Obtain input/buy-in from EMS, hospital staff, & medical providers who participate in trauma care

Develop overriding plan for trauma care

Driven & validated by the Trauma PI program



Education



- ▶ Use PI monitoring to guide education efforts
- ▶ Determine staff education, outreach & injury prevention priorities
 - Seek out educational offerings
 - Provide in-house education
 - Consider routine competency evaluation
 - Seek help from larger facilities when necessary

Clinical Protocols/Guidelines

- ▶ By-product of productive performance improvement
 - Decreases variation and errors
 - Increases positive patient outcomes
- ▶ Evidence-based medicine standard of care
- ▶ Ensures all care is:
 - Contemporary
 - Consistent between providers
- ▶ Monitor after implementation to determine effectiveness

Utilization of JCAHO “Harm & Error”

Newer approach that focuses not just on “opportunities for improvement”, but on why the individual &/or system failed

Attempts to quantify the amount of harm suffered by the patient

Attempts to address the nature of the error if one occurred:

- Missed assessment
- Correct assessment but incorrect plan generated
- Correct assessment with appropriate plan but plan poorly executed

Benchmarking

Comparing outcome measures with like-sized facilities with the same verification/designation level

May be in same state or even with similar Trauma Centers in neighboring states

National Trauma Data Bank (NTDB)

New emphasis on risk-adjusted benchmarking - One example is a commercial product offered by the American College of Surgeons, TQIP

Summary

Performance Improvement is the key to making the care you provide for the trauma patient the best it can be

Additional Resources

STN Trauma Outcomes & Performance Improvement Course (TOPIC)

www.traumanurses.org/topic-courses.html

ACS Trauma Performance Improvement and Patient Safety Reference Manual [ACS PI and Patient Safety Reference Manual](#)

Trauma PI Case Documentation Tool: [PI Case](#)

Eastern Association for the Surgery of Trauma www.east.org

Trauma Nursing: From Resuscitation through Rehabilitation by Karen McQuillan, WB Saunders

Harborview Medical Center, Seattle, WA: www.uwmedicine/harborview
www.trauma.org

American Trauma Society: www.amtrauma.org